VIRGINIA STANDARDS OF LEARNING

Spring 2004 Released Test

GRADE 8
Mathematics

LARGE PRINT FORM

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Mathematics

DIRECTIONS

Read and solve each question.

SAMPLE

Vicki had $228 in her checking account. She used $37 to buy a birthday gift for her grandmother. After that, how much did she have left in her checking account?

A $211

B $191

C $181

D $164

1   How many factors does a prime number have?

A   0

B   1

C   2

D   3

2 Mrs. Adams walks between $\frac{4}{10}$ and $\frac{6}{10}$ mile every day. Which is the BEST estimate of the number of miles she will walk in 30 days?

F 12

G 15

H 18

J 20

3 Mrs. Thomas made 4 quarts of strawberry jelly. This amount is the same as

A 1 cup

B 1 pint

C 1 gallon

D 1 milliliter

4 LaRue is going to put fertilizer on a rectangular field that measures 124 meters by 234 meters. How many square meters will she have to fertilize?

F 358 m^2

G 716 m^2

H $27,776 \text{ m}^2$

J $29,016 \text{ m}^2$

5 The radius of each wheel on a cart is 13 inches.

If a steel rim is fitted around a wheel, which is closest to the circumference of the rim?

A   20.4 in.

B   40.8 in.

C   81.6 in.

D   530.7 in

6 Darrell had scores of 76, 78, 76, 82, 62, and 100. For this data, which measure is greatest?

F Mean

G Median

H Mode

J Range

7 $3^4 = 81$

$3^3 = 27$

$3^2 = 9$

$3^1 = 3$

$3^0 = 1$

$3^{-1} = \dfrac{1}{3}$

$3^{-2} = \dfrac{1}{9}$

What is the value of 3^{-4}?

A $\dfrac{1}{6}$

B $\dfrac{1}{24}$

C $\dfrac{1}{27}$

D $\dfrac{1}{81}$

8 **What value for x makes $x + 2\dfrac{1}{3} = 4\dfrac{2}{3}$ true?**

F 2

G $2\dfrac{1}{3}$

H $2\dfrac{2}{3}$

J 3

GO ON

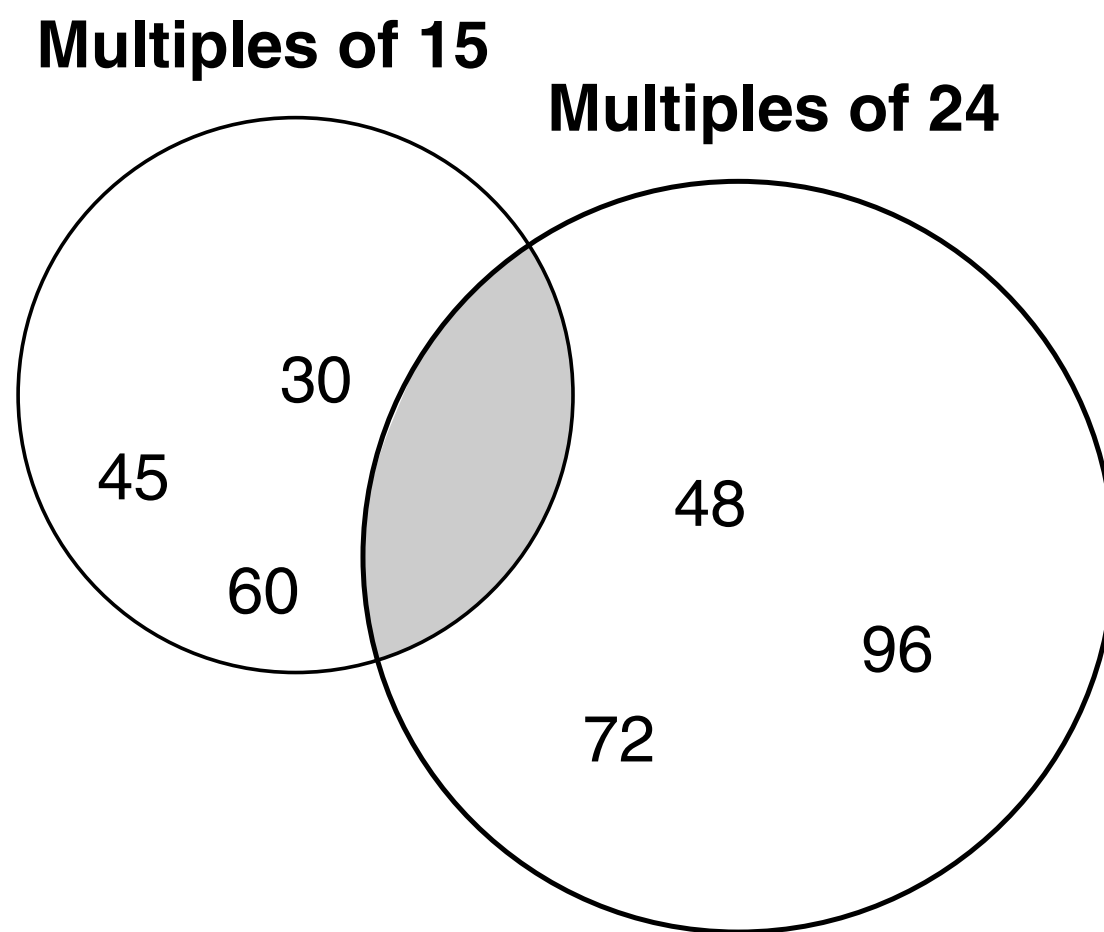**9** If $0.3 < x < 35\%$, which of the following could be the value of x?

A $\dfrac{1}{4}$

B $\dfrac{1}{3}$

C $\dfrac{1}{2}$

D 1

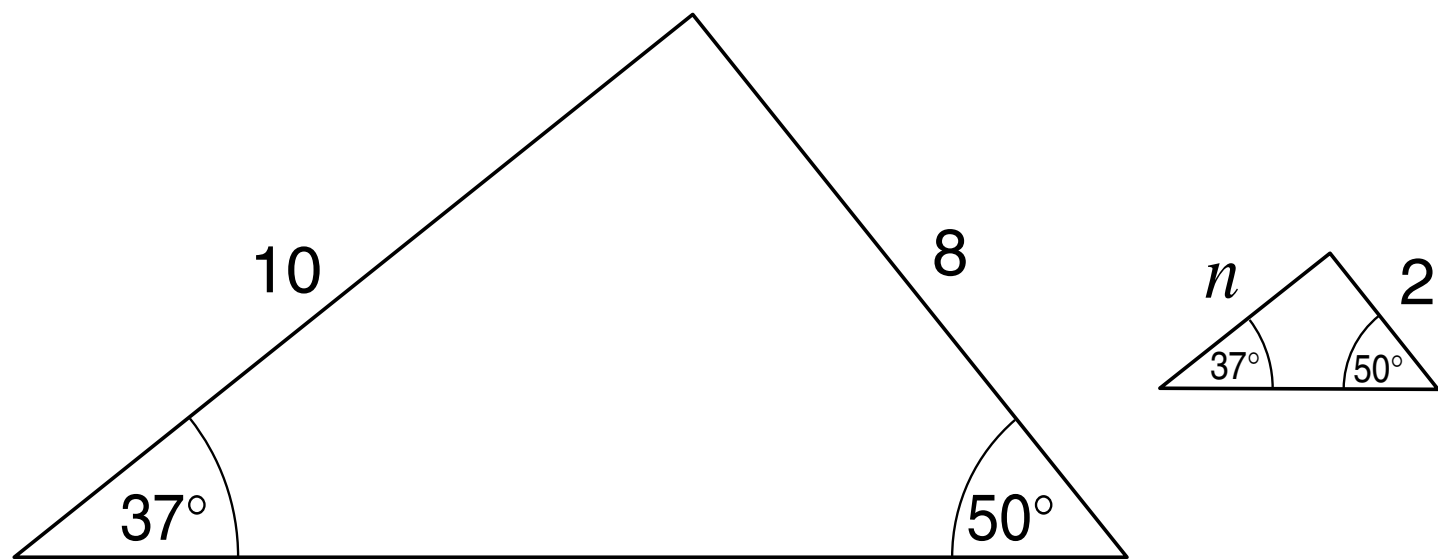**10** Sarah is filling numbers in the Venn diagram. No number is to be entered more than once.

Multiples of 15

Multiples of 24

30

45

60

48

96

72

What is the least number that can be appropriately placed in the shaded area of the diagram?

F   360

G   240

H   120

J   24

11 **Amy's mother ordered a pizza to be delivered to their home. The bill for the pizza was $18. She gave the delivery man a 15% tip. How much was the tip?**

A $0.27

B $1.50

C $1.80

D $2.70

12

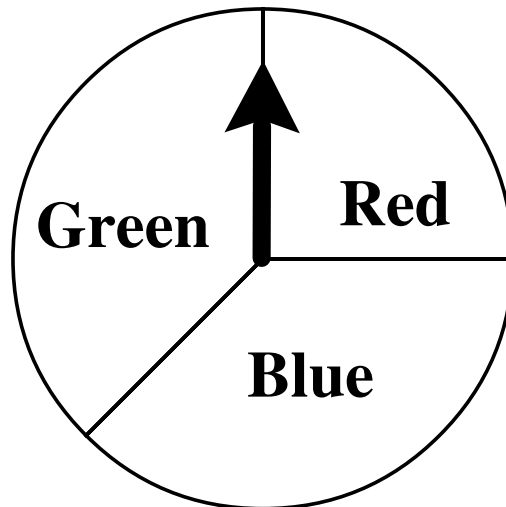**What is the length of side *n* on the second triangle?**

F 2.0

G 2.5

H 4.0

J 5.0

13 When a spinner is spun, about what percent of the time should it land on the space labeled "Red"?

A 45%

B 40%

C 35%

D 25%

14 Joan and Barry are candidates for class president. Orville, Sally, Consuela, Harry, and Rebecca are candidates for vice president. Sam, William, and Frederica are candidates for secretary. How many different combinations of president, vice president, and secretary are possible?

F 11

G 18

H 30

J 40

15 This is a list of the number of minutes each member of a study group spent studying for a test.

75   40   15   0   60   50   120   90   90   20

What was the median number of minutes spent studying for the test by the group?

A 50

B 55

C 56

D 60

16 The list shows the scores made by each member of Jaime's discussion group on the last test.

71 80 62 93 68 87 73 78

Which frequency table correctly displays the information?

F

Interval	Frequency
60–70	2
70–80	4
80–90	2
90–100	1

G

Interval	Frequency
60–69	2
70–79	3
80–89	2
90–99	1

H

Interval	Frequency
65	2
75	3
85	2
95	1

J

Interval	Frequency
60	2
70	4
80	2
90	1

GO ON

17 Hilary has $9 less than Barbara. Together they have $21. If *x* represents Barbara's money, which of the following expresses this relationship?

A $(x + 9) + x = 21$

B $(x - 9) + x = 21$

C $x - 9 = 21 + x$

D $x = 21 + x - 9$

18 Which of the following is NOT true?

F $3x - 8$ is an expression with one variable.

G $6x + 2y - 7$ is an expression with 3 terms.

H In the expression, $4x + 6y$, the coefficient of *x* is 4.

J $5x + 4 = 39$ is an expression.

GO ON

19 What is the solution to $\dfrac{x + 5}{30} = 12$?

A $x = 72$

B $x = 355$

C $x = 365$

D $x = 1,800$

20 Which of the following ordered pairs represents a point in the third quadrant of a coordinate plane?

F $(^-6, 4)$

G $(^-5, ^-7)$

H $(3, ^-2)$

J $(4, 2)$

21 A rectangular photograph measured 7.5 centimeters wide and 10.0 centimeters long. An enlargement was made that was 22.5 centimeters wide. How long was the enlargement?

A 17.5 cm

B 30.0 cm

C 75.0 cm

D 225.0 cm

22 What is the value of $3 + 7(2^3 - 6)^2$?

F 23

G 31

H 84

J 2,503

23 **Which is an integer?**

A $^-19$

B 1.5

C $\sqrt{2}$

D $\dfrac{1}{3}$

24 **As labor costs, an electrician charges $36.50 per hour for himself, and $27.50 for his assistant. What would be the total labor cost for a job taking $6\dfrac{1}{2}$ hours?**
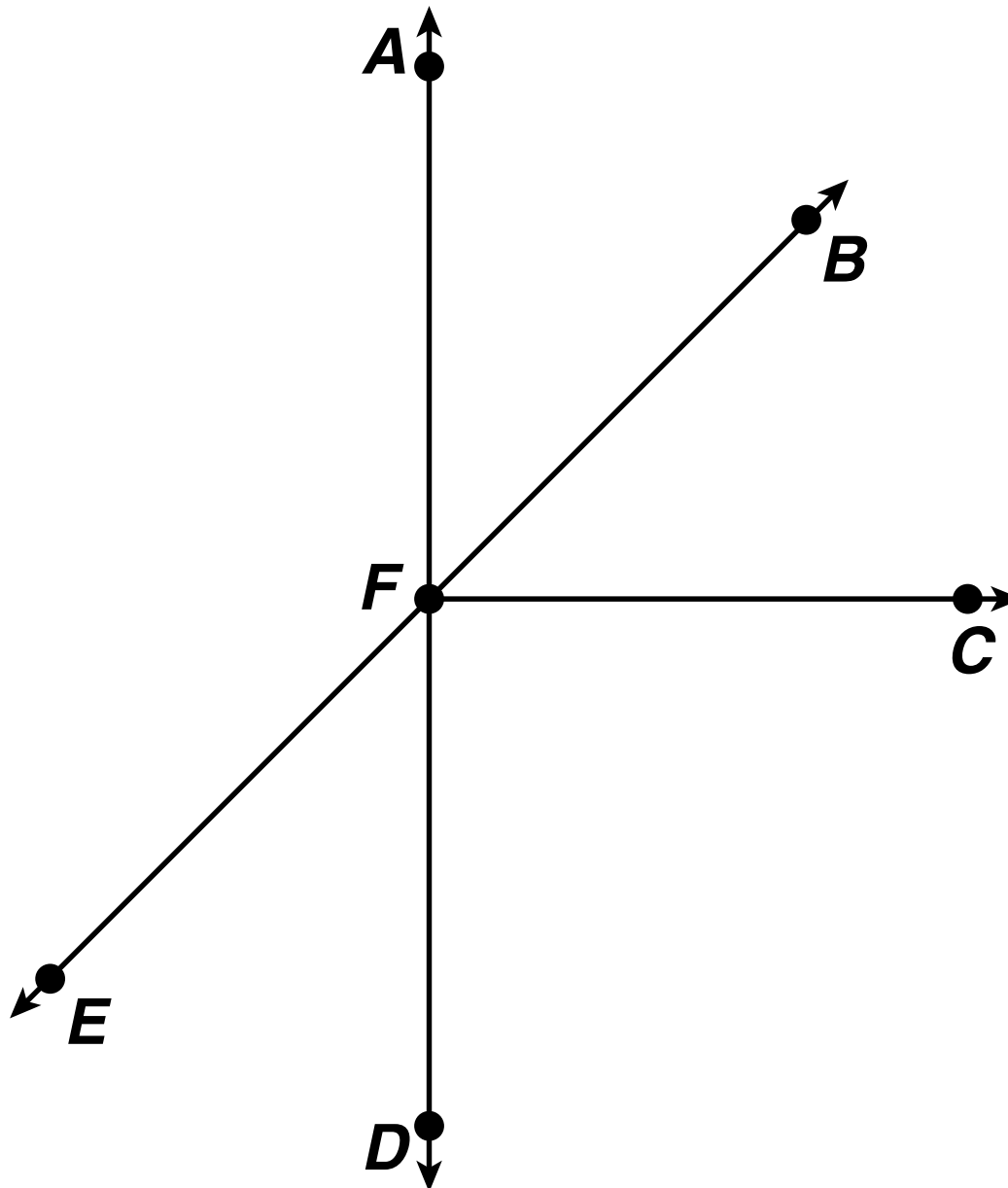
F $416.00

G $384.00

H $264.75

J $64.00

25 What is the value of $x^2(7 - x) + 2$ when $x = 5$?

    A 52

    B 100

    C 152

    D 172

26 Between what two consecutive whole numbers does $\sqrt{61}$ lie?

    F 6 and 7

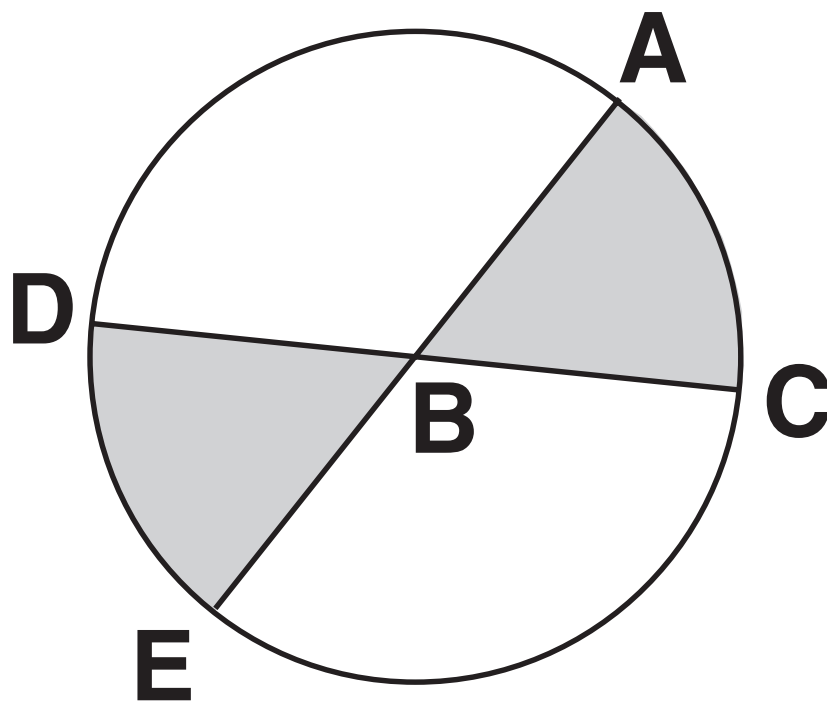   G 7 and 8

    H 8 and 9

    J 9 and 10

27 In the diagram below, $\overleftrightarrow{AD}$ is perpendicular to $\overrightarrow{FC}$.

Which pair is complementary?

A $\angle AFB$ and $\angle BFC$

B $\angle AFB$ and $\angle BFD$

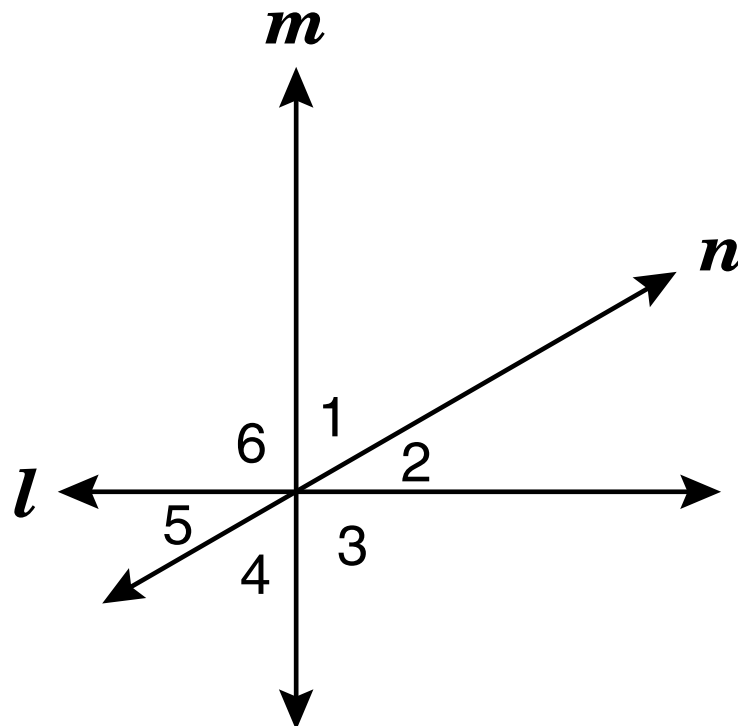C $\angle AFB$ and $\angle EFA$

D $\angle BFC$ and $\angle CFD$

28 Section *ABC* and section *EBD* of the flower garden contain roses. $\overline{AE}$ and $\overline{CD}$ are straight line segments.

If ∠*ABC* measures 38°, what is the measure of ∠*EBD*?
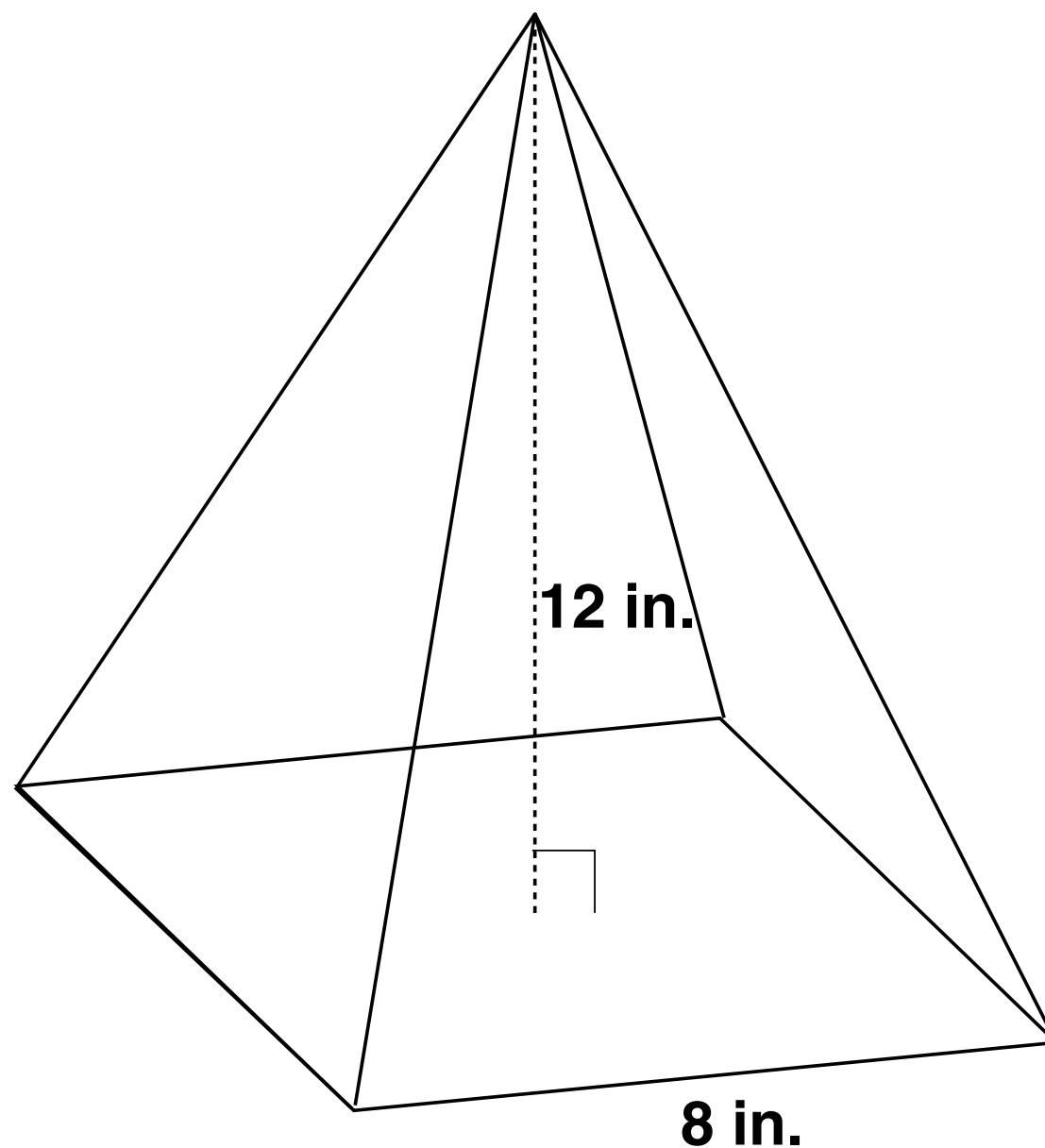
F   38°

G   52°

H   90°

J   142°

29 **Lines *l*, *m*, and *n* intersect at the same point forming the six angles shown. Lines *l* and *m* are perpendicular.**

Which angle has the same measure as ∠1?

A ∠2

B ∠3

C ∠4

D ∠5

30 **What is the volume of the square-based pyramid shown below?**

12 in.

8 in.

F   96 cu in.

G   256 cu in.

H   384 cu in.

J   768 cu in.

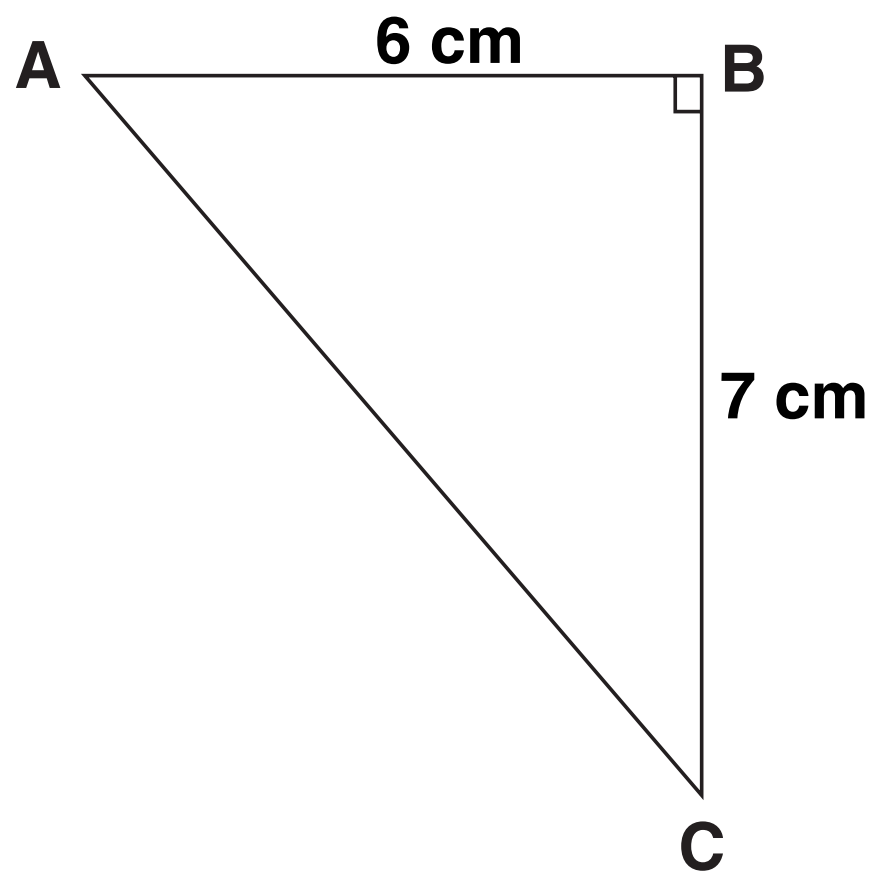**31** The largest angle in △ *ABC* measures 104°. What kind of triangle is △ *ABC*?

A   Equiangular

B   Obtuse

C   Right

D   Acute

32

What is the length of $\overline{AC}$?

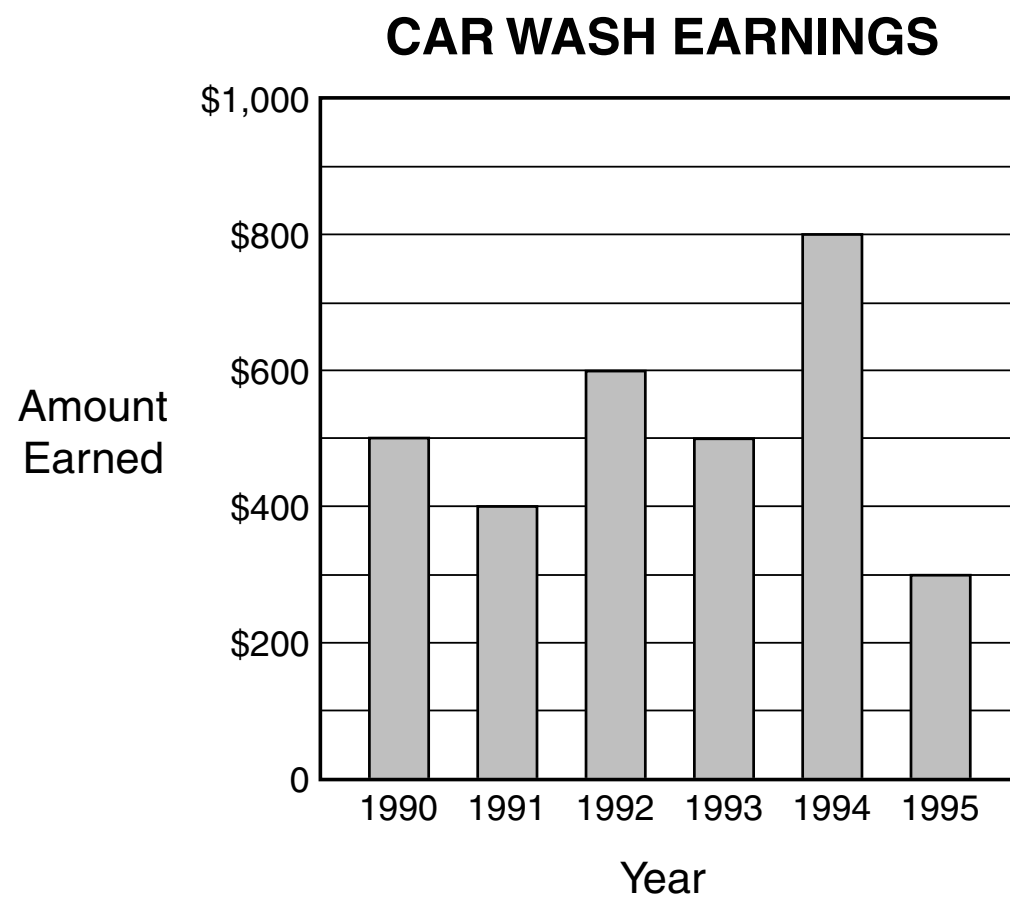F $\sqrt{85}$ cm

G $\sqrt{13}$ cm

H   8 cm

J   10 cm

33 In a random survey, 25 out of 150 people were able to give a correct answer to the question asked. If 500 people are surveyed, how many would be expected to answer the question correctly?

A 4

B 20

C 83

D 325

34 Each year the church youth group has a car wash and donates the earnings to the food pantry.

CAR WASH EARNINGS

Which amount is closest to the mean earnings over this period?

F $300

G $500

H $700

J $800

35 Ada and Jim received awards for placing either first, second, or third in their respective divisions at each of the 12 track meets attended by the team. The table indicates the results.

Meet #	1	2	3	4	5	6	7	8	9	10	11	12
Ada	1st	1st	2nd	3rd	1st	1st	2nd	2nd	1st	1st	3rd	1st
Jim	2nd	2nd	1st	1st	3rd	2nd	3rd	1st	2nd	1st	1st	1st

Which matrix BEST organizes the information in the table?

         Ada Jim   Ada Jim
1st $\begin{bmatrix} 6 & 7 \\ 4 & 3 \\ 2 & 2 \end{bmatrix}$ 1st $\begin{bmatrix} 7 & 6 \\ 3 & 4 \\ 2 & 2 \end{bmatrix}$
2nd
3rd

A   **C**

         Ada Jim   Ada Jim
1st $\begin{bmatrix} 7 & 6 \\ 4 & 3 \\ 2 & 2 \end{bmatrix}$ 1st $\begin{bmatrix} 6 & 6 \\ 5 & 3 \\ 2 & 2 \end{bmatrix}$
2nd
3rd

B   **D**

36 Angie mows lawns in her neighborhood to make money. She charges $25 per lawn and buys a new mower for $200. If x is the number of lawns, and p is her profit, which of the following would you use to find Angie's profit?

F $25x - 200 = p$

G $200 = 25x + p$

H $25x = p - 200$

J $25x + 200 = p$

37 What value of c makes the statement
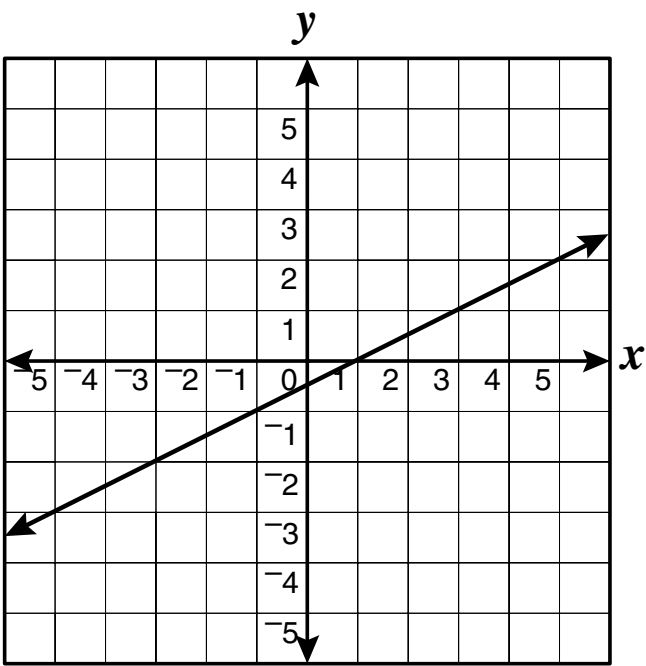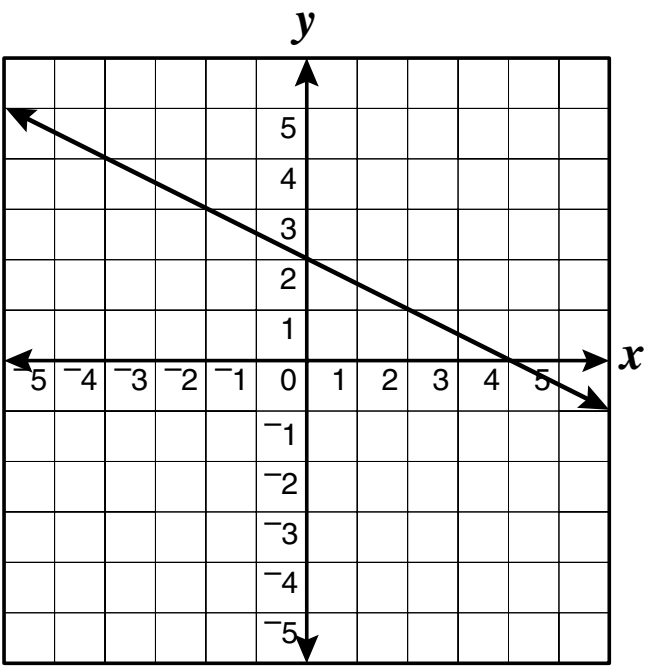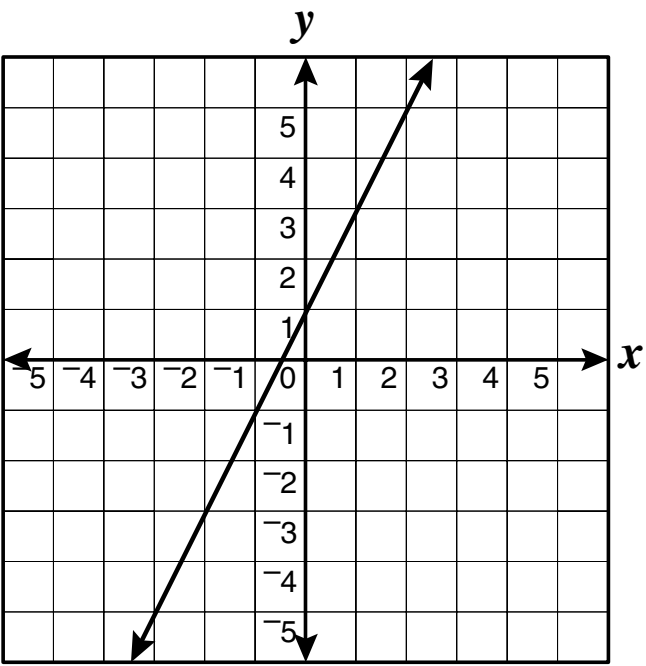$5(c - 0.15) = 2.50$ true?

A 0.47

B 0.53

C 0.63

D 0.65

38

x	y
2	5
0	1
⁻2	⁻3

Which graph shows a line that contains the points in the table of ordered pairs?

F

H

G

J

GO ON
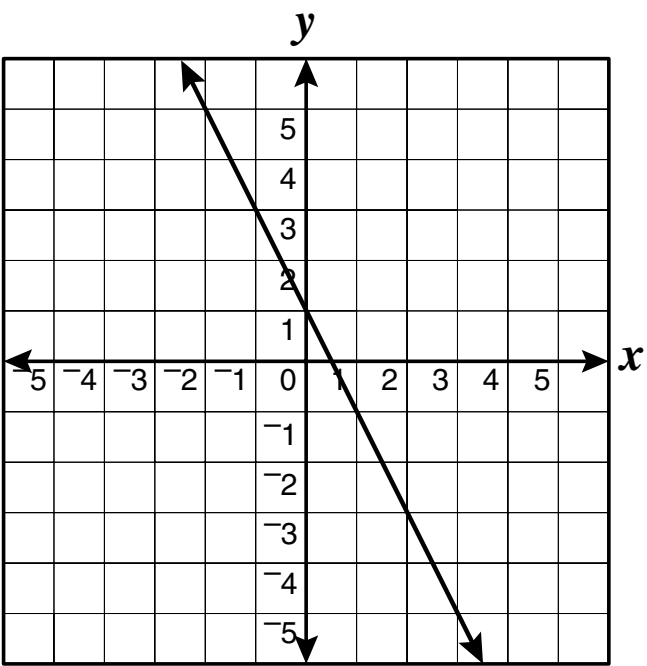
39

x	⁻1	1	2	3
y	0	4	6	8

Which is true for all pairs of values in the table?

A $y = 2x - 2$

B $y = 2x + 2$

C $y = 4x$

D $y = x + 3$

40 There are 48 newborn girls in a hospital nursery. For every 3 girls there are 2 boys. How many newborn boys are in the nursery?

F 72

G 48

H 32

J 24

STOP

Answer Key

Test Sequence Number	Correct Answer
1	C
2	G
3	C
4	J
5	C
6	F
7	D
8	G
9	B
10	H
11	D
12	G
13	D
14	H
15	B
16	G
17	B
18	J
19	B
20	G
21	B
22	G
23	A
24	F
25	A
26	G
27	A
28	F
29	C
30	G
31	B
32	F
33	C
34	G
35	C
36	F
37	D
38	G
39	B
40	H